

FOREST ENGINEERING EXAM TOPICS

1. Logging economics (2 mandatory & 1 optional problem)
 - A. Optimum landing / road spacing
 - B. Present net worth analysis
 - C. Harvest cost minimization analysis
 - D. Machine rate calculations
 - E. Decision tree analysis
2. Spar and guyline statics (1 mandatory & 1 optional problem)
 - A. Head and tailspar buckle and compression analysis
 - B. Guyline tensions and vector force analysis
3. High lead and skyline mechanics (1 optional problem)
 - A. Standing
 - B. Live skyline
 - C. Running skyline
 - D. Multispan
4. Logging public health and safety (1 mandatory problem)
 - A. Labor and industries safety regulations
 - B. Traffic control and signage
 - C. Forest chemicals
 - D. Noxious fumes
5. Environmental regulations (1 mandatory problem)
 - A. State Environment Protection Act requirements
 - B. Forest Practice / Watershed analysis regulations
 - C. Hydraulics Code
 - D. Department of Ecology water quality regulations
 - E. Sound and Noise management
6. Road Design (1 mandatory & 1 optional problem)
 - A. Circular curves
 - B. Vertical curves
 - C. Grades
 - D. Road Prism geometry
 - E. Soil Mechanics
7. Earthwork (1 mandatory & 1 optional problem)
 - A. End area calculations
 - B. Vertical and lateral shift earthwork balance
 - C. Mass diagrams and haul schedules
 - D. Slope staking
 - E. Retaining wall design
 - F. Slope stability analysis

8. Hydraulics (1 optional problem)
A. Open channel flow calculations
B. Drainage basin flow calculations
C. Culvert sizing calculations
9. Bridge Design and analysis (1 mandatory problem)
A. Structural design of timber stringer bridge
B. Capacity evaluations for existing bridges
10. Logging Machinery Design and Mechanics (2 optional problems)
A. Cable drum capacity / line quantity / fleet angle
B. Wire rope characteristics and capacity
C. Wire rope splicing / rigging
11. Truck Mechanics (this category has been retired from the LE exam)
12. Photogrammetry (1 optional problem)
A. Photo scale, displacement, parallax, distance, area
B. Photo coverage, flight plan design
13. Surveying (1 optional problem)
A. Traverse and spirit level reductions
B. Coordinate geometry / triangulation / area calculations
14. Logging Engineering Terminology (1 optional problem)
15. Standing Tree Static Forces Calculations (1 optional problem)